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ABSTRACT

Cited are two studies which analyzed the reinforcing effectiveness of verbal evaluative comments on educable retarded and handicapped elementary school children. In the first study, a two-choice push button discrimination, it is reported that Ss consistently chose a button which avoided the verbal comment "wrong", but made no significant distinction between "good" and a neutral nonsense word. In the second study, naturalistic observations of teachers' evaluative comments in six special education classes are said to indicate that positive comments were less informative than negative evaluation. It is explained that both studies supported the hypothesis that positive comments occur more frequently and serve more diverse functions than negative evaluations. (CL)

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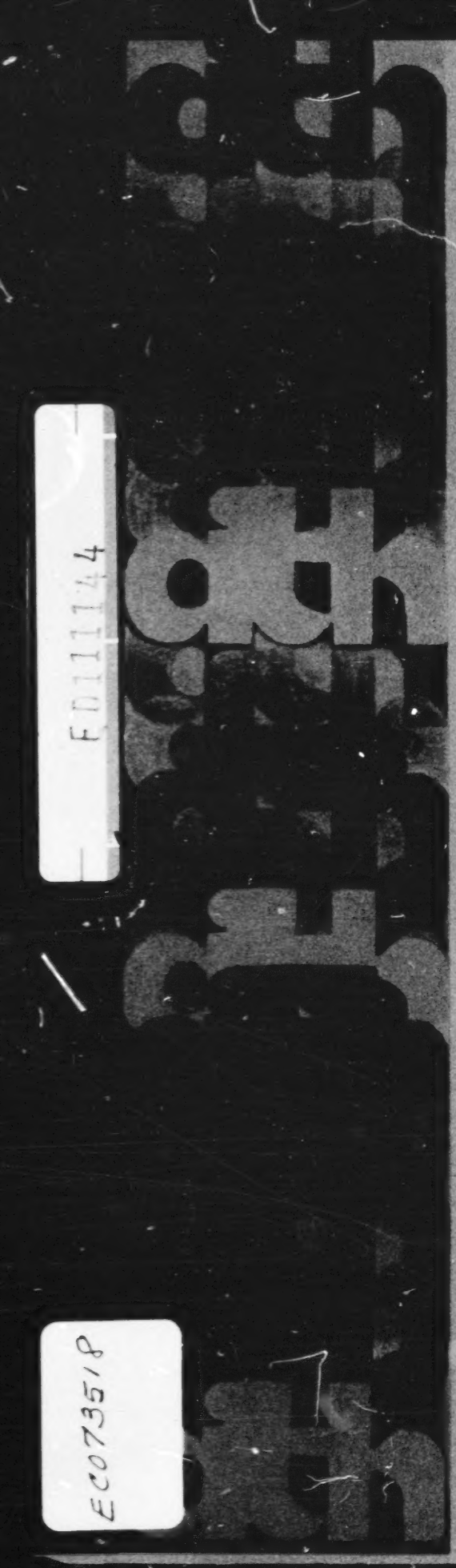

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EXPERIMENTAL-ETHOLOGICAL ANALYSES OF EVALUATIVE EXPRESSIONS AMONG RETARDED CHILDREN

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EXPERIMENTAL-ETHOLOGICAL ANALYSES OF EVALUATIVE EXPRESSIONS AMONG RETARDED CHILDREN[1]

Scott G. Paris and Robert B. Cairns

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Experimental-Ethological Analyses of Evaluative Expressions Among Retarded Children

Scott G. Paris and Robert B. Cairns

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Social reinforcement has been assumed to be a powerful method of behavioral control, particularly for children's learning. However, studies by Spence (1970), Hamilton (1969), and our own laboratory (Cairns, 1967, 1970) suggest that positive, verbal social reinforcement may be only modestly effective in promoting learning in the experimental situation. In view of the special emphasis placed upon social reinforcement for the learning and behavioral control of retarded children, we were particularly interested in these children's reactions to evaluative events.

Our first study was simply an extension of our previous experimental work with normal children. The purpose was to compare a positive social reinforcer, an undefined nonsense word, and a negative or disapproval comment to determine their relative reinforcing effectiveness. The experimental task, a two-choice push button discrimination, was administered to 56 children who attended primary and intermediate classrooms for the educable mentally retarded. The average chronological age was 9 years 8 months and the average IQ was 67.3.

The subject responded by choosing and pushing one of two buttons. One button was predesignated and the child's response on that button elicited the verbal outcome appropriate to the condition to which the child was assigned. The verbal event was either good, wrong, or ahwe.

Ahwe is a Polynesian word and was judged to be semantically neutral by an independent sample of children. I might point out that this nonsense word condition is a desirable and appropriate control group. Three groups were formed by the three different types of verbal outcomes. That is, some children heard good, some heard wrong, and others heard ahwe following a response on one button. Nothing was said after a response on the other button. A trial was initiated by a signal light, which was extinguished by a response on either button, and each child received 30 trials.

One measure of control by the verbal event was the number of times the child selected the button which yielded the verbal event. This reflects the degree to which the child performed to obtain or avoid the comments (See Figure 1, page 3). The histogram in Figure 1 shows this measure for the last ten trials for the three groups. In this two-choice task a score of 5 would be expected by chance. A one-way analysis of variance was significant at the .01 level but the most interesting comparisons involve the nonsense word control group. There was no difference in performance between the groups receiving ahwe and good, but the group exposed to wrong was significantly different from the group receiving ahwe, $p < .02$. This indicates that children consistently chose a button that avoided the verbal event wrong. But good, a commonly assumed social reinforcer, had no more control in this simple discrimination than a nonsense word.

Another set of conditions involved the use of informative instructions which defined the outcome event as a positive or negative cue (See Figure 2, page 4). In brief, the instructions did not

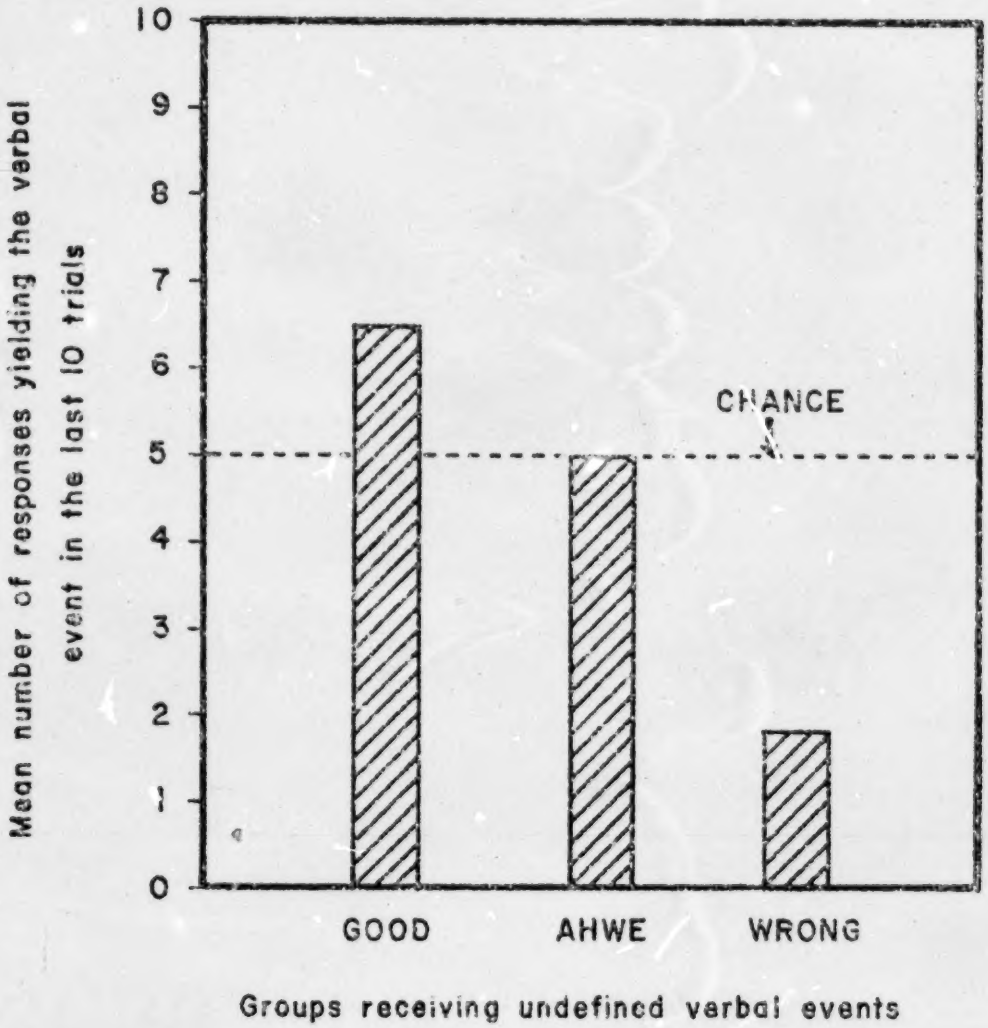
Mean number of responses yielding the verbal event in the last 10 trials
10
9
8
7
6
5
4
3
2
1
0
CHANCE
GOOD
AHWE
WRONG
Groups receiving undefined verbal events

Figure 1

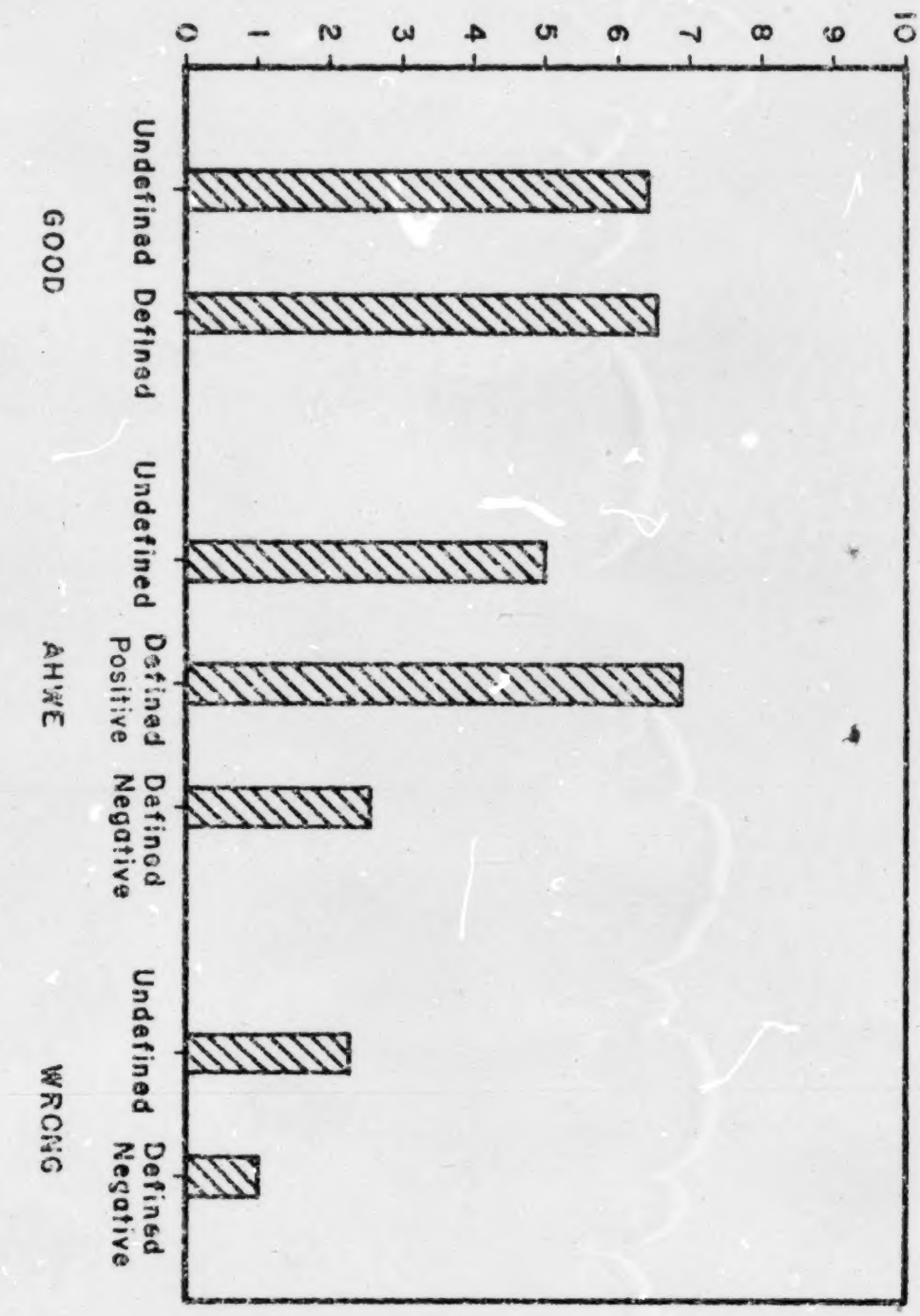
Mean number of responses yielding verbal event in last 10 trials
0
1
2
3
4
5
6
7
8
9
10
Undefined
Defined
Undefined
Defined Positive
Defined Negative
Undefined
Defined Negative
GOOD
AHA!E
WRONG

Figure 2

significantly enhance the effectiveness of good or wrong relative to their undefined uses. But an analysis of variance among the three groups receiving ahwe revealed highly significant differences, $p < .01$. Thus, it does appear the retarded children could use the information embodied in the instructions.

Getting back to the principal finding, we would like to emphasize the greater control exerted by wrong relative to good. This is consistent with several of our previous studies with normal and retarded children (Cairns and Paris, in press) and the familiar right-wrong effect originally noted by Buss and Buss (1956). If we can generalize to classes of evaluations, the question remains, "Why do positive evaluations have so little control in the experimental context?" They seem to belie the label "social reinforcers." Several years ago Cairns (1967) suggested that the commonplace and indiscriminant usage of positive evaluations may proactively interfere with the experimenter's intended, informative use. Hill's (1968) hypothesis regarding the secondary reinforcing aspects of evaluative comments also emphasizes the history of occurrence of these events. In a similar vein, Boucher and Osgood (1969) recently promulgated the Pollyanna hypothesis which asserts there is a universal human tendency to use evaluatively positive words more frequently and diversely than evaluatively negative words. In light of these hypotheses, it appears that the natural usage of evaluative comments may influence their effectiveness in the experimental situation. Indeed, the narrow focus of experimental investigations may have precluded the most interesting and enlightening observations concerning evaluative comments. Therefore, the next

step in our research was a naturalistic descriptive, or ethological analysis of the use of evaluative comments in the classroom.

Six special education classrooms, from which the subjects for the experimental study were drawn, were each observed twice. During these ten-minute observation periods, the teacher's evaluative comments were recorded and categorized according to one of fourteen behavioral sequences. These sequences specified the initiation of the teacher-child interaction and the function of the evaluative comment. Five separate functions of the comments are represented in these sequences and we have labeled them organization, information, qualitative evaluation, query, and permission. Briefly defined, organization refers to verbal utterances by the teacher which are not contingent upon any child's performance. They seem like verbal placemarkers in the teacher's thoughts. Informational uses indicate that the child has produced an objectively correct or incorrect response. For example, an informative comment would be used when the child answers a specific question correctly or incorrectly. Qualitative evaluations refer to situations where the child is praised or criticized for relative performance and there is no single objectively defined correct response. Query refers to situations where the evaluation is used as a probe for understanding, for example, All right? O.K.? Finally, permissional comments either grant or deny a child's request. The reliability of the various categories--as determined by two raters independently viewing videotaped classes--ranged from adequate to excellent, r = .70 to .90 (See Table 1, page 7).

Table 1

Conditional Probability of Occurrence of Positive and Negative Evaluative Exp
Function of Different Teacher-Child Interactions (n = 6 teachers, each observed

Type of Verbal Event	Function of Evaluation (as determined by context of teacher-child interaction)					
	Organizational (non-evaluative)	Informational	Qualitative Evaluation	Query	Permission	Ov
Positive (e.g., good, right, fine, OK)	.39 (81)[a]	.28 (58)	.27 (56)	.04 (8)	.03 (7)	
Negative (e.g., wrong, that's poor, incorrect, no good)	0 (0)	.70 (19)	.19 (5)	0 (0)	.11 (3)	

[a] Frequency (i.e., total number of instances) indicated in parentheses.

Table 1

al Probability of Occurrence of Positive and Negative Evaluative Expressions as a Different Teacher-Child Interactions (n = 6 teachers, each observed in two sessions)

Function of Evaluation (as determined by context of teacher-child interaction)					
anizational -evaluative)	Informational	Qualitative Evaluation	Query	Permission	Overall Probability and Frequency
.39	.28	.27	.04	.03	.89
(81)[a]	(58)	(56)	(8)	(7)	(210)
0	.70	.19	0	.11	.11
(0)	(19)	(5)	(0)	(3)	(27)

., total number of instances) indicated in parentheses.

The results of our observations are tabulated according to positive and negative comments and their individual functions. The conditional probability of occurrence is shown on the top line of each cell; the total frequencies are shown in parentheses. Inspection of the right hand margin reveals the greater overall frequency of positive events, $p < .001$. This distributional finding is in accordance with the Pollyanna hypothesis. However, the most striking outcome illustrated in this table is the frequency of positive organizational utterances. Typical examples are, "O.K., now everyone take out your workbooks," or "All right, let's quiet down." This latter example is interesting because of the paradox it presents. The behavior is not All right; it is All wrong. And this noncontingent usage is common. Given that a verbal event is a positive evaluation, the probability of its functioning as organizational is nearly .4. In contrast, negative comments occurred much less often and did not function as either organizational or query utterances. Negative comments, when they did occur, usually signalled that an incorrect response was in fact wrong. On the contrary, positive comments served more diverse functions in the teacher-child interactions and were not primarily informational.

The differential use of positive and negative comments is not limited to special classrooms. Evidence for the reliability of this data is derived from a similar ethological analysis of twelve regular first, second, and third grade classrooms (See Table 2, page9). In Table 2 the top number in each cell is the conditional probability for regular classrooms. We were surprised by the extremely close relationship among categories. The only major difference is the tendency

Table 2

Conditional Probability of Occurrence of Positive and Negative Evaluative E
for Special Education and Regular Classrooms

Type of Verbal Event	Function of Evaluation (as determined by context of teacher-child interaction)				
	Organizational (non-evaluative)	Informational	Qualitative Evaluation	Query	Permission
Positive (e.g., good, right, fine, OK)	.39[a]	.28	.26	.05	.02
	.39[b]	.28	.27	.04	.03
Negative (e.g., wrong, that's poor, incorrect, no good)	.00	.53	.46	.01	.00
	.00	.70	.19	.00	.11

[a]Regular Classes

[b]Special Classes

Table 2

al Probability of Occurrence of Positive and Negative Evaluative Expressions for Special Education and Regular Classrooms

	Function of Evaluation (as determined by context of teacher-child interaction)				
nizational evaluative)	Informational	Qualitative Evaluation	Query	Permission	Overall Probability and Frequency
.39[a]	.23	.26	.05	.02	.87
.39[b]	.28	.27	.04	.03	.89
.00	.53	.46	.01	.00	.13
.00	.70	.19	.00	.11	.11

for special education teachers to refrain from negative evaluations of the quality of children's performance.

The data from both studies support the hypothesis that positive evaluations occur more frequently and serve more diverse functions than negative evaluations. It is plausible that a verbal evaluation's history of occurrence may determine its effectiveness for behavioral control. That is, there may be a causal relationship. In a short-term experimental situation, Cairns (1970) has demonstrated that a verbal or nonverbal event which was not a reliable signal for M&M delivery was ineffective in later controlling children's discrimination performance.

This presentation has focused on the analysis of the reinforcing effectiveness of verbal evaluative comments. The implicit reference has been to task performance which offers an identifiably correct solution. We do not deny that there are affective components to verbal evaluations, but these may play only a minor role in children's attainment of a task solution. Because verbal evaluation is the dominant mode of reinforcement to remedy learning problems in special education classrooms, it is essential that we critically analyze the assumed reinforcing power of evaluative comments.

In summary, three major points are observed in this report.

1. Social approval events have not proved to be very effective in promoting learning in the experimental situation. Both normal and retarded children perform better on the experimental learning tasks under conditions of negative evaluative comments rather than positive comments.

2. The ethological analysis indicated that positive events occurred frequently, indiscriminately, and in a variety of functions. Negative comments, however, were used sparingly by special education teachers and nearly always in an informative manner. It is possible that the differential histories of occurrence determine the differential effectiveness for learning observed in the experimental context.
3. The ethological analysis is a new and different approach to the study of social reinforcement. The methodology allows the researcher to investigate a greater range of uses of evaluative comments and a wide variety of natural classroom interactions. In particular the joint ethological and experimental analyses offer potentially great gains for hypothesis testing and hypothesis generation.

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